

# FASTENINGS

Button Head Socket Screws

Flat Head Socket Screws (CSK)

Keyserts

Low Head Cap Screws

Nuts - Hex

- Nyloc

Pressure Plugs

Recoil (Thread Inserts)

Socket Head Cap Screws

Socket Head Shoulder Screws

Socket Set Screws

Threaded Rod

Washers - Flat

- Spring

# BUTTON HEAD SOCKET SCREWS

## METRIC

STD	STANDARD DIAMETERS						
LGTHS	M3	M4	M5	M6	M8	M10	M12
6	X	X					
8	X	X	X				
10	X	X	X	X	X		
12	X	X	X	X	X		
16	X	X	X	X	X	X	X
20	X	X	X	X	X	X	X
25		X	X	X	X	X	
30		X	X	X	X	X	
35						X	
40					X		
Material: ASTM F835M				Thread Class: 4g 6g			
Hardness: Rc 38 - 43				Property Class: 12.9			

## IMPERIAL

STD	STANDARD DIAMETERS			
LGTHS	3/16"	1/4"	5/16"	3/8"
1/2"	X	X		
3/4"	X	X	X	
1"	X	X	X	X
1.1/4"			X	
1.1/2"		X		X
2"				X
Material:		ASTM A574		
Hardness:		Rc 38 - 43		
Thread Class:		3A		

# FLAT HEAD SOCKET SCREWS

## METRIC

STD	STANDARD DIAMETERS											
LGTHS	M2	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24
5												
6		X										
8		X	X	X	X							
10		X	X	X	X	X						
12		X	X	X	X	X						
16		X	X	X	X	X	X					
20		X	X	X	X	X	X	X				
25		X	X	X	X	X	X	X	X			
30		X	X	X	X	X	X	X		X		
35				X	X	X	X	X				
40			X	X	X	X	X	X				
45					X	X	X	X				
50				X	X	X	X	X		X	X	
55						X	X			X		
60						X	X	X				
65												
70						X	X	X				
75										X		
80							X	X				
90							X	X				
100							X	X				
ISO METRIC COARSE THREADS												
Material: ASTM F835M						Thread Class: 4g 6g						
Hardness: Rc 38 - 43						Property Class: 12.9						

# FLAT HEAD SOCKET SCREWS

F2

## IMPERIAL

STD	STANDARD DIAMETERS									
LGTHS	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
1/4"										
5/16"										
3/8"		X								
1/2"		X	X	X	X					
5/8"		X	X	X	X					
3/4"		X	X	X	X		X			
7/8"										
1"		X	X	X	X	X	X			
1.1/4"		X	X	X	X		X			
1.1/2"		X	X	X	X	X	X			
1.3/4"				X			X	X		
2"			X	X	X	X	X	X		
2.1/4"										
2.1/2"			X	X	X		X			
2.3/4"										
3"					X		X			
WHITWORTH THREADS										
Material:	ASTM F835M					Thread Class:		3A		
Hardness:					Rc 38 - 43					

Flat, countersunk head and button head screws are recommended and designed for moderate fastening applications: Machine guards, hinges, covers, etc. They are not suggested for use in critical high strength applications where socket head cap screws should be used.

## KEYSERTS

THIN CARBON UNC	THIN CARBON UNF	THIN CARBON METRIC	HEAVY DUTY UNF	HEAVY DUTY METRIC
1/4" - 20 TPI	3/8" - 24TPI	M5 X 0.80	5/8" - 18TPI	M10 X 1.25
5/16" - 18TPI		M6 X 1.00	3/4" - 16TPI	M12 X 1.25
3/8" - 16TPI		M8 X 1.25		M14 X 1.50
7/16" - 14TPI		M10 X 1.50		M14 X 2.00
1/2" - 13TPI		M12 X 1.75		M16 X 1.50
5/8" - 11TPI				M16 X 2.00
3/4" - 10TPI				M20 X 2.50

# LOW HEAD CAP SCREWS

## METRIC

STD	STANDARD DIAMETERS					
LGTHS	M4	M5	M6	M8	M10	M12
10	X					
12		X	X			
16	X	X	X			
20			X	X		
25	X		X	X	X	
30	X	X			X	
35			X	X		X
40					X	X
45						X
50				X	X	X
Material: ASTM 574M    Thread Class: 4g 6g						
Hardness: Rc 33 - 39    Property Class: 10.9						

# NUTS (HEXAGON)

## METRIC

STD			
DIA.	HEX	NYLOC	WING
M2	X		
M3	X	X	
M4	X	X	
M5	X	X	
M6	X	X	X
M8	X	X	X
M10	X	X	X
M12	X	X	X
M14	X	X	
M16	X	X	
M20	X	X	
M24		X	
M30		X	

## IMPERIAL

STD		
DIA.	HEX	NYLOC
3/16"	X	
1/4"	X	X
5/16"	X	X
3/8"	X	X
7/16"		X
1/2"	X	X
5/8"	X	X
3/4"	X	X

# PRESSURE PLUGS

STD		
DIA.	BSP	NPTF
1/16"		X
1/8"	X	
1/4"	X	
3/8"	X	
1/2"	X	
3/4"	X	
MINIMUM HARDNESS - ALL SIZES		
ROCKWELL 38 HRC		

### THE RECOIL SYSTEM:

- Provides stronger and more efficient threads
- Creates superior threads with greater holding power.
- Is quick and easy to use
- Is the simple way to repair stripped or damaged threads
- Saves time and money
- Is suitable for new applications requiring strong threads
- Is ideal for alloys and other light materials
- Simplifies changeover from imperial to metric, and vice versa
- Installed inserts meet current military and aviation standards
- Inserts are interchangeable with other brands of helically wound inserts

The Recoil system consists of Recoil stainless steel helically wound precision inserts, high-quality HSS taps and installation tools. Inserts are available in both free-running or locking types in a wide range of imperial, metric and spark plug sizes.

### HOW RECOIL WORKS:

Recoil inserts are made from high-quality stainless steel wire, with a diamond-shaped cross section, wound to the shape of a spring thread. The insert, which is larger in diameter than the tapped hole, is compressed during installation then allowed to spring back, permanently anchoring into place.

Because it is bigger, the Recoil insert has greater area to hold in and is stronger than original threads. The insert's compensatory action shares the load over the entire bolt and hole, thus reducing stud fracture, and increasing holding or pull out strength.

### RECOILS ARE AVAILABLE AS:

Recoil repair kits consisting of HSS quality tap, insertion tool, inserts and instructions.

Free-running or locking type inserts in 1, 1.5, 2, 2.5 and 3D in most imperial, metric and spark plug sizes. Spare inserts are available in packets, bulk or strip feed. Special sizes can be made to order. Non-standard and special sizes are available on request.

### AVAILABLE SEPARATELY:

- Inserts...locking and free running
- Taps...a range of high-quality HSS hand or production taps
- Extracting tools

### THE ADVANTAGES OF RECOIL:

- Simple and easy to use
- Maximum assembly strength
- Reduced thread wear
- Corrosion resistant
- Design flexibility
- Stronger assemblies
- Wide temperature tolerance (-150°C to +430°C) (-270°F to +774°F)
- Low cost
- Weight-saving
- Interchangeable with other helically wound systems
- Better than original in most applications

PLEASE turn the page for a list of AVAILABLE SIZES

### RECOIL KITS

BSW RANGE	UNC RANGE	UNF RANGE	METRIC RANGE	
1/2" X 12 BSW KIT	UNC RANGE KIT	UNF RANGE KIT	METRIC RANGE KIT	M12 X 1.00 KIT
1/4" X 20 BSW KIT	1/4" X 20 UNC KIT	1/4" X 28 UNF KIT	M3 X 0.50 KIT	M12 X 1.25 KIT
	5/16" X 18 UNC KIT	5/16" X 24 UNF KIT	M4 X 0.70 KIT	M12 X 1.50 KIT
	3/8" X 16 UNC KIT	3/8" X 24 UNF KIT	M5 X 0.80 KIT	M12 X 1.75 KIT
	7/16" X 14 UNC KIT	7/16" X 20 UNF KIT	M6 X 1.00 KIT	M14 X 1.00 KIT
	1/2" X 13 UNC KIT	1/2" X 20 UNF KIT	M8 X 1.25 KIT	M14 X 1.25 KIT
	5/8" X 11 UNC KIT	5/8" X 18 UNF KIT	M10 X 1.00 KIT	M16 X 1.50 KIT
	3/4" X 10 UNC KIT	.10-32 UNF KIT	M10 X 1.25 KIT	M16 X 2.00 KIT
	.8-32 UNC KIT		M10 X 1.50 KIT	M20 X 2.50 KIT
			M11 X 1.25 KIT	M24 X 3.00 KIT

### RECOIL INSERTS

BSW INSERTS	UNC INSERTS	UNF INSERTS	METRIC INSERTS	
1/2" X 12 BSW X 1.5D	1/4" X 1.5D UNC	1/4" X 1.5D UNF	M4 X 0.70 X 1.5D	M10 X 1.50 X 2.0D
	5/16" X 1.0D UNC	5/16" X 1.5D UNF	M5 X 0.80 X 1.0D	M10 X 1.5 X 3.0D
	5/16" X 1.5D UNC	3/8" X 1.5D UNF	M5 X 0.80 X 1.5D	M12 X 1.25 X 1.5D
SPARK PLUG	3/8" X 1.5D UNC	3/8" X 2.0D UNF	M6 X 1.00 X 1.0D	M12 X 1.50 X 1.5D
M14 X 1.2	3/8" X 3.0D UNC	7/16" X 1.5D UNF	M6 X 1.00 X 1.5D	M12 X 1.75 X 1.5D
	7/16" X 1.5D UNC	7/16" X 2.0D UNF	M6 X 1.00 X 2.0D	M12 X 1.75 X 2.5D
	1/2" X 1.5D UNC	1/2" X 1.5D UNF	M6 X 1.00 X 3.0D	M12 X 1.75 X 3.0D
STEEL INSERTS	5/8" X 1.0D UNC		M8 X 1.00 X 1.5D	M14 X 1.25 X 3/8D
M6 X M10	5/8" X 1.5D UNC		M8 X 1.25 X 1.5D	M14 X 1.25 X 1.2D
M8 X M10			M10 X 1.00 X 1.5D	M14 X 1.25 X 3/4D
M12 X M10			M10 X 1.25 X 1.5D	M16 X 2.00 X 1.5D
			M10 X 1.50 X 1.5D	

### THREAD SAVERS, EXTRACTORS, TAPS AND THREAD PITCH GAUGES

THREAD SAVERS	EXTRACTORS	TAPS	THREAD PITCH GAUGE
M12	M5 - 25	.6-32 NC SPIRAL FLUTE	6 - 20MM STUD SAVER
M14		.8-32 NC SPIRAL POINT	22 - 38MM STUD SAVER
		1/4 - 20 UNC INT	15MM REGRIP
		5/16" NC SPIRAL FLUTE	
		3/8" NC SPIRAL FLUTE	
		M10 SPIRAL FLUTE	

OTHER SIZES OF KITS AND INSERTS AVAILABLE UPON REQUEST

### RECOIL TAPPER INSERTS

UNC	METRIC		STAINLESS STEEL
1/4"	M3 X 0.50	M8 X 1.25	M8 X 1.25
3/8"	M4 X 0.80	M10 X 1.5	
1/2"	M5 X 0.80	M12 X 1.75	
5/8"	M6 X 1.00	M16 X 2.00	
	M6A X 1 X 12		

# SOCKET HEAD CAP SCREWS

F6

## METRIC

STD	STANDARD DIAMETERS																
LGTHS	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M30	M36
5			X	X													
6			X	X	X												
8	X		X	X	X	X											
10			X	X	X	X	X	X									
12	X		X	X	X	X	X	X									
16		X	X	X	X	X	X	X	X								
20	X		X	X	X	X	X	X	X								
25			X	X	X	X	X	X	X	X	X						
30			X	X	X	X	X	X	X	X	X						
35			X	X	X	X	X	X	X	X	X		X				
40			X	X	X	X	X	X	X	X	X		X				
45				X	X	X	X	X	X	X	X	X	X				
50			X	X	X	X	X	X	X	X	X		X		X		
55					X	X	X	X	X	X	X	X	X				
60				X	X	X	X	X	X	X	X		X		X		
65					X	X	X	X	X	X	X		X		X		
70					X	X	X	X	X	X	X	X	X		X		
75						X	X	X	X	X	X		X		X		
80					X	X	X	X	X	X	X	X	X		X		
90					X	X	X	X	X	X	X		X	X	X		
100					X	X	X	X	X	X	X		X		X		X
110						X	X	X	X	X	X		X		X		
120						X	X	X	X	X	X		X		X		
130							X	X	X		X		X		X		
140							X	X	X		X		X		X		
150							X	X	X		X		X		X		
160							X	X	X		X		X		X		
180							X	X	X		X		X		X		
200							X	X	X		X		X		X	X	
220											X		X				
240											X		X				
260																	X
280											X		X				
300													X				
ISO METRIC COARSE THREADS																	
Material:	ASTM A574M - DIN 912 - Alloy Steel						Thread Class:	4g 6g									
Hardness:	Rc 38 - 43						Property Class:	12.9 - ISO 898/1									

Please specify 'UNBRAKO' if 'Unbrako' screws required

# SOCKET HEAD CAP SCREWS

## IMPERIAL

STD	STANDARD DIAMETERS									
LGTHS	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
1/4"	X		X							
5/16"										
3/8"	X	X	X	X						
1/2"	X	X	X	X	X					
5/8"	X	X	X	X	X					
3/4"	X	X	X	X	X	X	X	X		
7/8"			X	X	X			X		
1"	X	X	X	X	X	X	X	X		X
1.1/4"	X	X	X	X	X		X	X	X	X
1.1/2"	X	X	X	X	X	X	X	X	X	X
1.3/4"		X	X	X	X		X	X	X	X
2"		X	X	X	X	X	X	X	X	X
2.1/4"			X	X	X		X	X	X	X
2.1/2"		X	X	X	X	X	X	X	X	X
2.3/4"			X	X	X			X	X	X
3"		X	X	X	X		X	X	X	X
3.1/4"			X	X	X			X		
3.1/2"			X	X	X		X	X	X	
3.3/4"								X		
4"			X	X	X		X	X	X	X
4.1/2"					X		X	X	X	X
5"					X		X	X	X	
5.1/2"							X	X		
6"					X		X	X	X	X
6.1/2"							X		X	
7"								X		
8"							X	X	X	
WHITWORTH THREADS										
Material: ASTM 574m Alloy Steel					Thread Class: "0" to "1" 3A					
Hardness: Rc 38 - 43					over 1" diameter - 2A					

## UNF THREAD

STD	STANDARD DIAMETERS					
LGTHS	10-32	3/16"	1/4"	5/16"	3/8"	1/2"
3/8"	X		X			
1/2"	X		X	X	X	
5/8"	X					
3/4"	X		X	X	X	
1"	X		X	X	X	X
1.1/4"	X		X			
1.1/2"	X		X	X	X	X
1.3/4"	X	X	X	X	X	
2"			X		X	X
2.1/2"					X	X
3"			X			X
4"					X	

Please specify 'UNBRAKO' if 'Unbrako' screws required



# SOCKET HEAD SHOULDER SCREWS

## METRIC

SHOULDER LENGTH	SHOULDER DIAMETERS d1					
	6	8	10	12	16	20
LENGTH	(THREAD DIAMETERS) d2					
	(M5)	(M6)	(M8)	(M10)	(M12)	(M16)
10	X					
12	X	X				
16	X	X	X	X		
20	X	X	X	X		
25	X	X	X	X		
30	X	X	X	X	X	
35	X	X	X	X	X	
40	X	X	X	X	X	X
45	X	X	X	X	X	
50	X	X	X	X	X	X
55		X	X	X	X	
60		X	X	X	X	X
65			X	X	X	
70			X	X	X	X
75			X	X	X	
80			X	X	X	X
90			X	X	X	X
100			X	X	X	X
110				X	X	
120			X	X	X	X

ISO METRIC COARSE THREADS

Material: ASTM A574M Alloy Steel

Hardness: Rc 36 - 43 Thread Class: 4g 6g

## IMPERIAL

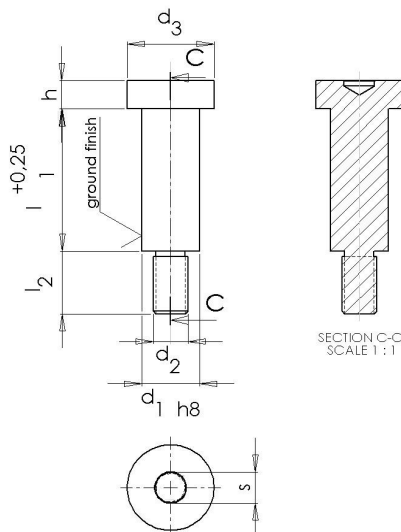
SHOULDER LENGTHS	SHOULDER DIAMETERS d1					
	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
LENGTHS	(THREAD DIAMETER) d2					
	(3/16)	(1/4)	(5/16)	(3/8)	(1/2)	(5/8)
3/8"	X	X	X			
1/2"	X	X	X	X		
5/8"	X	X	X	X		
3/4"	X	X	X	X		
1"	X	X	X	X		
1.1/4"	X	X	X	X	X	
1.1/2"	X	X	X	X	X	X
1.3/4"	X	X	X	X	X	
2"	X	X	X	X	X	X
2.1/4"		X	X	X	X	
2.1/2"		X	X	X	X	X
2.3/4"			X	X	X	
3"		X	X	X	X	X
3.1/4"			X	X	X	
3.1/2"			X	X	X	
3.3/4"			X	X	X	X
4"			X	X	X	X
4.1/4"				X		
4.1/2"				X	X	
4.3/4"				X		
5"				X	X	X

WHITWORTH THREADS

Material: ANSI/ASME B18.3, ASTM A574

Hardness: Rc 36 - 43 Thread Class: 3A

1/2" UNC available in some lengths



**PLEASE NOTE:**  
 WHEN ORDERING SOCKET SHOULDER SCREWS,  
 PLEASE ORDER BY:  
 1. SHOULDER DIAMETER  
 2. SHOULDER LENGTH  
 e.g. 12 x 70- has a 12mm shoulder, which is 70mm long  
 and has a M10 thread.

Please specify 'UNBRAKO' if 'Unbrako' screws required

# SOCKET SET SCREWS

## METRIC

STD	STANDARD DIAMETERS							
LGTHS	M3	M4	M5	M6	M8	M10	M12	M16
4	X	X						
5	X	X	X					
6	X	X	X	X				
8	X	X	X	X	X			
10	X	X	X	X	X	X		
12	X	X	X	X	X	X	X	
16		X	X	X	X	X	X	X
20		X	X	X	X	X	X	X
25				X	X	X	X	X
30			X	X	X	X	X	X
35					X	X	X	X
40					X	X	X	X
45						X	X	X
50					X	X	X	X
ISO METRIC COARSE THREADS								
Material:	ASTM F912			Thread Class:		4g 6g		
Hardness:	Rc 45 - 53							

## IMPERIAL

STD	STANDARD DIAMETERS						
LGTHS	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"
3/16"		X					
1/4"	X	X	X	X			
5/16"	X	X	X	X			
3/8"	X	X	X	X			
1/2"		X	X	X	X		X
5/8"		X	X	X	X	X	X
3/4"		X	X	X	X		X
1"		X	X		X		X
1.1/4"		X	X		X	X	X
1.1/2"			X		X	X	X
2"					X		X
WHITWORTH THREADS							
Material:	ASTM F912 Alloy Steel						
Hardness:	Rc 45 - 53			Thread Class:		3A	

Please specify 'UNBRAKO' if 'Unbrako' screws required

# THREADED ROD F10

ZINC PLATED

METRIC	IMPERIAL
M5	3/16"
M6	1/4"
M8	5/16"
M10	3/8"
M12	7/16"
M14	1/2"
M16	5/8"
M20	3/4"
M24	7/8"
	1"
ISO METRIC COARSE	WHITWORTH THREAD
1METRE LENGTHS	24" LENGTHS

## WASHERS

STD DIA.	SPRING	FLAT
1/8" - M3		X
5/32" - M4	X	X
3/16" - M5	X	X
1/4" - M6	X	X
5/16" - M8	X	X
3/8" - M10	X	X
1/2" - M12	X	X
9/16" - M14	X	X
5/8" - M16	X	X
3/4" - M20	X	X
1" - M26		X